

**REMARKS**

Claims 1, 3 – 5, 7 – 8, 10, and 14 – 18 remain in this application. Claims 2, 11 – 13, and 19 have been cancelled. Claim 20 has been added. Claims 1, 3, 10, and 18 have been amended.

The examiner objected to claims 1, 3, and 12 because “the associated vehicle axle” should be --an associated vehicle axle-- in claims 1 and 3, and “at position” should be --at a position-- in claim 12. Applicant has amended claims 1 and 3 to make these corrections in accordance with the examiner’s requests. Applicant has cancelled claim 12, therefore making amendment of claim 12 unnecessary.

The examiner objected to the disclosure for not sufficiently describing the auxiliary spring means comprising “the means arranged to detect the height across the vehicle and to adjust the auxiliary spring means to compensate for any difference in height.” Similarly, the examiner rejected claims 1 – 5, 7 – 8, and 10 – 17 under Section 112, first paragraph, as failing to comply with the enablement requirement because the claims contain subject matter not adequately described in the specification. Specifically, the examiner stated that the “means arranged to detect height across the vehicle” has not been adequately disclosed in the specification so as to enable one skilled in the art to make and/or use the invention. This language was originally present in cancelled claim 6 and was subsequently added by amendment to claims 1, 3, and 10. Applicant has now deleted this language from independent claims 1, 3, and 10. Applicant has; however, added new claim 20, which depends from claims 1 or 3 and mirrors cancelled claim 6. In short, new claim 20 reincorporates this language as it appeared in cancelled claim 6. Applicant submits that the language “wherein said auxiliary spring means comprises means arranged to detect the height across the vehicle and to adjust the auxiliary spring means to compensate for any difference in height” now found only in claim 20 is adequately described in the specification as hereinafter set forth and therefore enabling.

Page 6, lines 7 – 11 of the specification read as follows:

The auxiliary spring 3 is a small air spring which can be 'height sensed' to raise the spring when it is highly loaded to level the associated vehicle to the required height. Alternatively, the overall pressure in the system can be raised to increase the vehicle height for operating over rough ground or in other difficult terrain.

Further, page 9, lines 14 – 18 of the specification read:

The system 10 also allows for conventional height sensing control to be moved toward the rear of the springs 21 and away from the axle center. This reduces the higher load that the second leaf 20, rear cantilever 23, 25 would otherwise have to accommodate as the air pressure is reduced at constant spring height.

These paragraphs of the specification adequately describe the means arranged to detect the height across the vehicle and to adjust the auxiliary spring means. These paragraphs also enable one skilled in the art to make and/or use the invention. Applicant therefore respectfully requests that the objection to the disclosure and the rejection of the claims 1 – 5, 7 – 8, and 10 – 17 under Section 112, first paragraph be withdrawn.

Further, the examiner rejected claims 1 – 5, 7 – 8, and 10 – 17 under Section 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner stated that the last few lines of claims 1, 3, and 10 regarding the difference in height across the vehicle can be interpreted in two distinctly different ways and should be rewritten for purposes of clarification. As stated above, applicant has deleted this language from independent claims 1, 3, and 10 while adding it to new dependent claim 20. Applicant respectfully traverses this rejection. Specifically, applicant submits that page 6, lines 7 – 11 of the specification, quoted above, adequately define "the means arranged to detect the height across the vehicle and to adjust the auxiliary spring means to compensate for any difference in height" so that this claim language is not indefinite. It is apparent from this portion of the specification that the means to detect the height across the vehicle and to

adjust the auxiliary spring to compensate for any difference in height may raise the spring when it is highly loaded to level the associated vehicle to the required height or to raise the overall pressure in the system to increase the vehicle height for operation over rough ground or in other difficult terrain. Therefore, applicant respectfully requests that the rejection of claims 1 – 5, 7 – 8, and 10 – 17 under Section 112, second paragraph be withdrawn.

The examiner also rejected claims 1 – 5, 7 – 8, and 10 – 19 under Section 102(b) as being anticipated by Brownier et al. (U.S. Patent No. 3,231,258, hereinafter “Brownier”). Applicant respectfully traverses this rejection.

First, applicant has amended independent claims 1, 3, 10, and 18 to patentably distinguish the present invention over the prior art of record and, in particular, newly cited reference Brownier. Specifically, the language “said auxiliary spring means is mounted on the upper leaf spring on a part thereof spaced above the lower leaf spring and at a position generally intermediate the vehicle axle and a point of attachment of said opposite end of the lower leaf spring to the associated vehicle chassis” has been added to claims 1, 3, 10, and 18. Further, claim 18 has been amended to generally incorporate the limitation of now cancelled claim 19. Basis for these amendments can be found throughout the specification as filed and, in particular, in Figures 6 and 7. Moreover, as stated above, each of independent claims 1, 3, and 10 have been amended to remove the subject matter of cancelled claim 6 relating to the height adjustment feature.

The present invention as now defined by the independent claims provides a vehicle suspension system that embodies all the benefits of the prior art suspension systems depicted by Figures 1 and 3 of the present application but without the disadvantages as is apparent from the discussion in the opening part of the specification. The present invention as now defined requires that:

- i) the auxiliary spring means is mounted on the upper leaf spring;
- ii) the auxiliary spring is mounted on the upper leaf spring at a position generally intermediate the (position of the) vehicle axle and the point of attachment

of the end (on that side of the vehicle axle) of the lower leaf spring to the associated vehicle chassis;

iii) the end of the lower leaf spring on that side of the vehicle axle is separately connected to the associated vehicle chassis; and

iv) the auxiliary spring means is mounted on a part of the upper leaf spring that is spaced above the lower leaf spring.

It is implicit from (iii) and (iv) above that the ends of the upper and lower leaf springs on that side of the vehicle axle are not joined together for connection to the associated vehicle axle as is the case in a number of the prior art arrangements.

Next, it is quite clear that neither of the previously cited prior art references, namely Orndorff and Hedenberg, discloses an auxiliary spring means mounted in series with the upper leaf spring towards an end thereof that is generally intermediate the vehicle axle and the point of attachment of the lower leaf spring to the associated vehicle chassis, on a part of the upper leaf spring that is spaced above the lower leaf spring and where that end of the upper leaf spring is connected to the vehicle chassis through the auxiliary spring means.

Further, the newly cited reference Brownier discloses a combined air and leaf spring suspension system. Brownier also discloses the use of a pair of auxiliary spring means 34, 36 that act on a support beam 66 that connects a portion of the upper leaf spring 168 to the vehicle chassis at a position directly above the vehicle axle (see Figure 8). In Brownier, the air spring units 34, 36 are mounted to opposite ends of the support beam 66, the support beam being defined as a **rigid non-deflectable support beam**. The support beam 66 is separate from the leaf spring unit 32 (the leaf spring unit is also seen as 142 in Fig. 6 and as 166 in Fig. 8). Further, the support beam 66 is not a leaf spring and cannot function as one because it is rigid and non-deflectable. Moreover, in the suspension system of Brownier, the air spring units 34, 36 are disposed in a **parallel** relation to the leaf spring unit 32. Brownier, therefore, does not teach or suggest the present invention. In independent claims 1, 3, 10, and 18 of the present application, applicant claims a

suspension system in which an auxiliary spring means (for example, an air spring) is mounted **in series** with the upper leaf spring for attaching the upper leaf spring to an associated vehicle chassis. As is readily apparent from Figs. 6 and 7 and from the specification, the auxiliary spring means is connected to the upper leaf spring (see Figs. 6, 7; and page 8, lines 18 - 21). This is clearly a different arrangement than that of Brownier. Furthermore, in the present invention, the connection of the auxiliary spring means to the upper leaf spring "softens" the rate of the auxiliary spring means. This is not possible in Brownier because the air springs 34, 36 are not mounted to a leaf spring but instead to a rigid, non-deflectable beam. Hence, claims 1, 3, 10, and 18 are allowable, and claims 4 - 5, 7 - 8, and 14 - 17 are also allowable as depending from allowable base claims.

For these reasons, applicant respectfully requests that the Section 102(b) rejection of claims 1 - 5, 7 - 8, and 10 - 19 over Brownier be withdrawn.

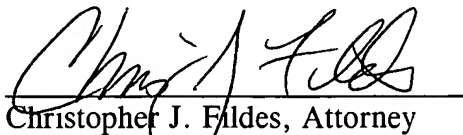
Jensen et al. (U.S. Patent No. 4,397,478), Bockewitz (U.S. Patent No. 4,998,749), and Walton et al. (U.S. Patent No. 5,129,633) were cited by the Examiner but not applied.

This amendment and request for reconsideration is felt to be fully responsive to the comments and suggestions of the Examiner and to present the claims in condition for allowance. Favorable action is requested.

Respectfully submitted,

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